Chapter 16 – Site Conditions Module

This chapter explains how to use the tools in the IFMAP Site Condition module to apply Site Conditions throughout the Compartment. It focuses on how to digitize Site Conditions in the system, when known, to running the Analysis Tool to see if the Site Conditions applied are correct. Digitizing can start as early as Pre-Inventory digitizing and can continue throughout the inventory process.

Concepts to be covered in this Chapter

- Digitizing Site Conditions
- Site Conditions Analysis Tool
- Changes (additions/deletions) to Site Conditions
- When to code Site Conditions

Definition of terms

Site Condition – Factors used to show availability of the stand for harvest. Often, constraints exist that will restrict harvest. They can be used as stand descriptors, but must be used when there are areas that appear silviculturally ready for harvest, but are not being prescribed. They can be used for any stand, but any stand that meets generic silvicultural criteria and does not have a treatment coded must have at least one site condition coded. Site Conditions are also applied to Treatments that are managerially desirable to do, but where there is less than a 50% chance the condition limiting treatment can be overcome. For a complete listing of Site Conditions see Appendix O.

Managerially Desirable – This describes any Treatment that if carried out, would produce an acceptable result that furthers goals and objectives for the resource.

Generic Silvicultural Criteria – All Forested Cover Types have age and/or basal area stocking thresholds identified where accounting is necessary for justification

as to why an area isn't being treated (See Appendix N). Treatment prescriptions should not be written just because a stand meets these thresholds. For a number of reasons a Treatment may not be *Managerially Desirable*. There are also stands that may be *Managerially Desirable* for treatment before meeting Generic Silvicultural Criteria.

Activity Tracking – The system used to document Treatments as they move along the approval process and treatment sequence, and also to document those Treatments that are terminated at a stage prior to successful completion.

Treatment – A commercial or non-commercial activity resulting from the routine decision making process (compartment review) or resulting from a Disturbance.

Data Layers

Each of the layers below can be found within the "**Site Conditions Group**" layer, which is pre-loaded into the "**Management Data**" group layer found in most ArcMap templates in the GDSE.

Site Conditions - This layer has attribution for various constraints to harvesting. Site conditions can be coded for any stand at any time. They must be coded for stands that meet silvicultural criteria but have harvest constraints, whether managerially desirable to harvest or not.

Areas to Address – These areas are identified using the Treatments Site Conditions Analysis Tool as being greater than 5 acres, meets silvicultural criteria and do not have a Treatment or Site Condition coded. As the layer states, these areas must be addressed either by identifying a Site Condition or a Treatment or both. Areas need to be addressed before a compartment is ready for Pre-Review, Web Posting and approval following Compartment Review.

Stand/Site Conditions – This layer is used for analysis and QAQC showing areas (and parts of stands) that have Site Conditions identified, whether they meet silvicultural criteria or not, or have a treatment prescribed.

Post Stage 1 Analysis (optional) – These areas are identified using the Post Stage 1 Site Conditions Analysis Tool as being greater than 5 acres, meets silvicultural criteria and is not covered by an AOI or Site Condition. These areas must be addressed either by an AOI or Site Condition.

Digitizing Site Conditions

Use this tool to map areas within a compartment where it is:

- Not managerially desirable to implement a treatment because of one or more harvest constraints found on this site.

- Managerially desirable to implement a treatment, but limited by one or more Site Conditions.

Just like digitizing Pre-Inventory stands, the Site Conditions are digitized using the same tools. Open a map project or template that contains the Site Conditions data layers. The Site Conditions group layer can be found in several Map Templates, as well as the L: drive. Use Toolkit "7_Site Conditions". The Island, Split, Merge, Explode and Burn In Polygon tools are all there to be used.

To begin, start an edit session making sure Site Conditions is in the database. Then, setting Site Conditions as the selectable layer, select the Site Conditions polygon and start digitizing known constraints. This layer is very similar to the Pre-Inventory layer. It will be available for edits once boundary verification is complete. By default the layer is set to 'No Limiting Factor'.

Remember, Site Conditions is its' own layer. You are not constrained by stand lines. Stand lines may be used (using the Burn In Polygon, with care), but Site Conditions often are a compilation of many stands, or parts of stands.

The best time to address all these issues is during your Post Stage 1 analysis. However, Site Conditions can be digitized as soon as the Pre-Inventory layer is established, continue as you collect Stage 1 data, finalize at Treatment Creation and continue into Activity Tracking as needed. It can be an ongoing process or addressed all at once.

Obvious Site Conditions can be identified while doing Pre-Inventory digitizing. This is easiest done by using the Burn In Polygon tool as you are digitizing the Pre-Inventory layer. To do this:

- Start an edit session, choosing Site Conditions in the database

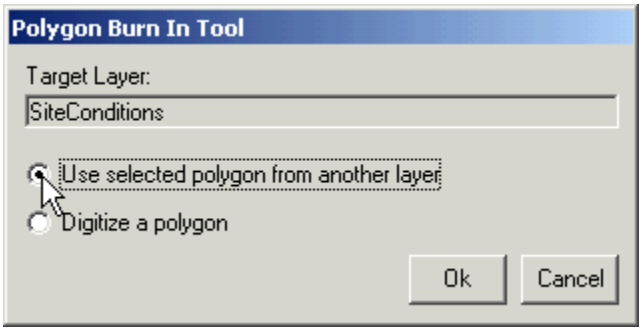
- Make the Pre-Inventory layer is the selectable layer

- Make sure the Task is set to 'Create New Feature', and Target: to 'Site Conditions'

- Select the shape you want to 'burn in'

- Hit the 'Burn In Polygon' button

- Select 'Use selected polygon from another layer' radio button



- Hit 'Ok'

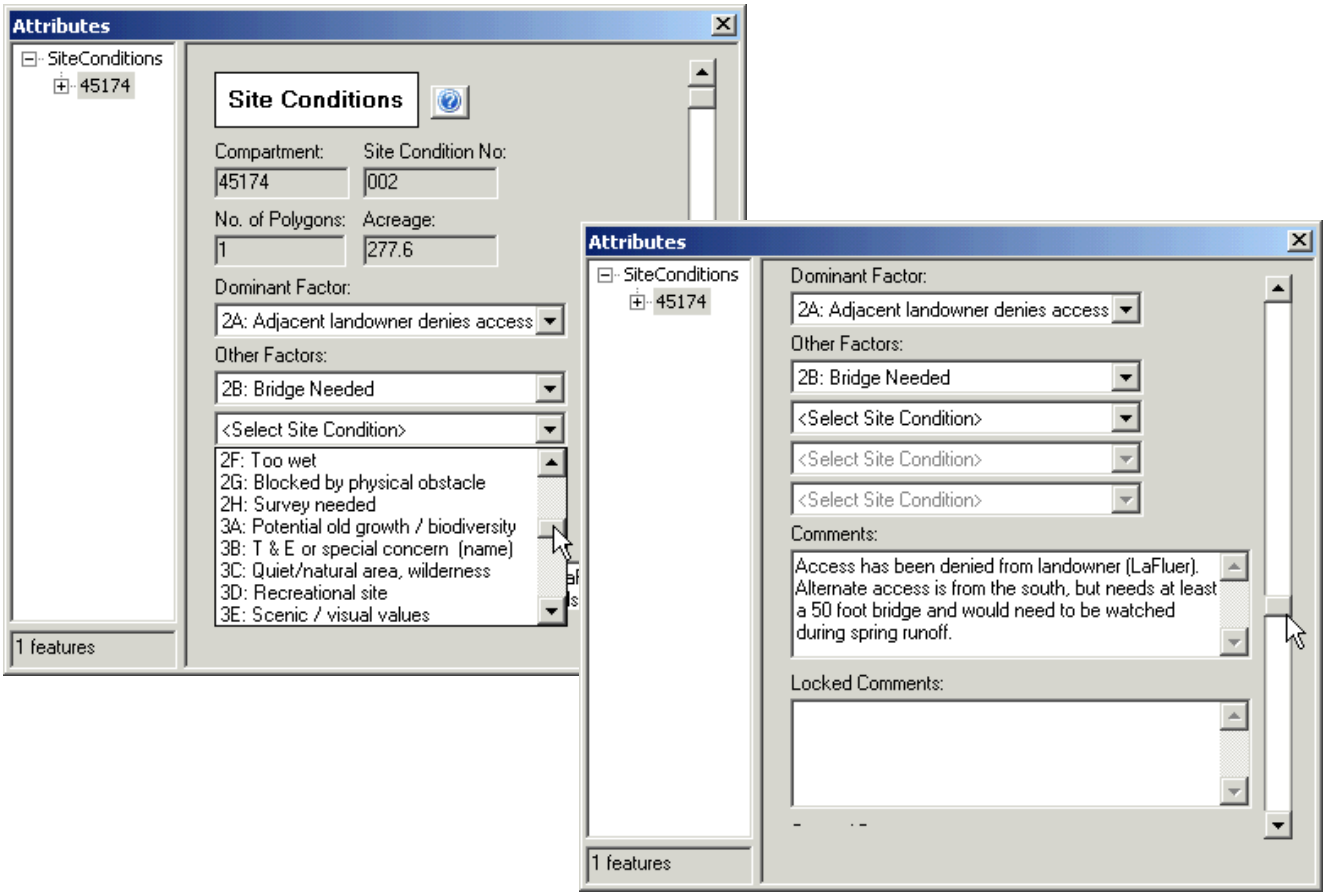
- The Attribute editor will open for you to fill in the factor(s) needed

This 'Burn In Polygon' tool is useful for not only using a selected polygon of Pre-Inventory stands, but any other shapefile that you want to use (Forest stands, Areas to Address, Treatments, etc).

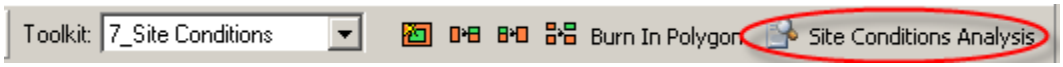
You may want to plan your Site Condition digitizing with your Pre-Inventory digitizing if known Site Conditions exist. Think of the larger areas that might have Site Conditions applied to them as you digitize the Pre-Inventory layer. For example, if the large, multi-stand area north of a river has a Site Condition of Bridge Needed, then before you digitize any more stands north of the river in the Pre-Inventory layer, use the 'Burn In Polygon' tool to select the one polygon north of the river and apply the appropriate Site Condition.

During collection of Stage 1 data, Site Conditions relating to categories *1) Administrative and Legal Factors, 2) Accessibility Factors, and 3) Special Management or Use Designations* should be inventoried. Then the remaining categories *4) Markets and Industrial Factors and 5) Technological/Ecological Factors* can be addressed as you analyze Stage 1 data and start writing Treatments.

As Site Conditions are digitized, the attribute editor window will open allowing you to choose the ideal attributes. One dominant factor is needed when choosing Site Conditions, but up to four others can be chosen as well. These should be chosen in descending order. A 'Comments' box is provided to provide more detailed information, and a 'Locked Comments' box is available to describe sensitive information that we are bound by policy or procedure not to publish or otherwise release to the public.



Site Conditions Analysis Tool



The Site Conditions Analysis Tool queries the data to verify that all stands meeting Generic Silvicultural Criteria are being considered for treatment, or have Site Conditions associated with them identifying them as not desirable for management at this time.

During the Inventory process, and up until the Treatments are finalized following the Compartment Review, the **Treatments** Analysis Tool must be run after Treatments are written and created, and whenever an edit is made to either the Treatments layer, Site Conditions layer or certain Stage 1 Forested data. There is also the option to run it after AOIs are loaded (See **Post Stage 1** below).

These are the two options with the tool:

- The **Post Stage 1** Analysis is ***optional*** and can be used to identify stands meeting generic silvicultural criteria, and intersects them with the AOI and Site Conditions layers. It highlights any area that is over 5 acres that meets generic silvicultural criteria and is not covered by an AOI or Site Condition.
- The **Treatments** Analysis is ***required*** and is used to identify stands meeting generic silvicultural criteria, and intersects them with the Treatments and Site Conditions layers. It highlights any area that is over 5 acres that meets generic silvicultural criteria and is not covered by a Treatment or Site Condition. Running this tool also adds, or edits existing Site Condition data in the statewide database table, used for analysis and reporting.

Site Conditions 'Treatments' Analysis Tool

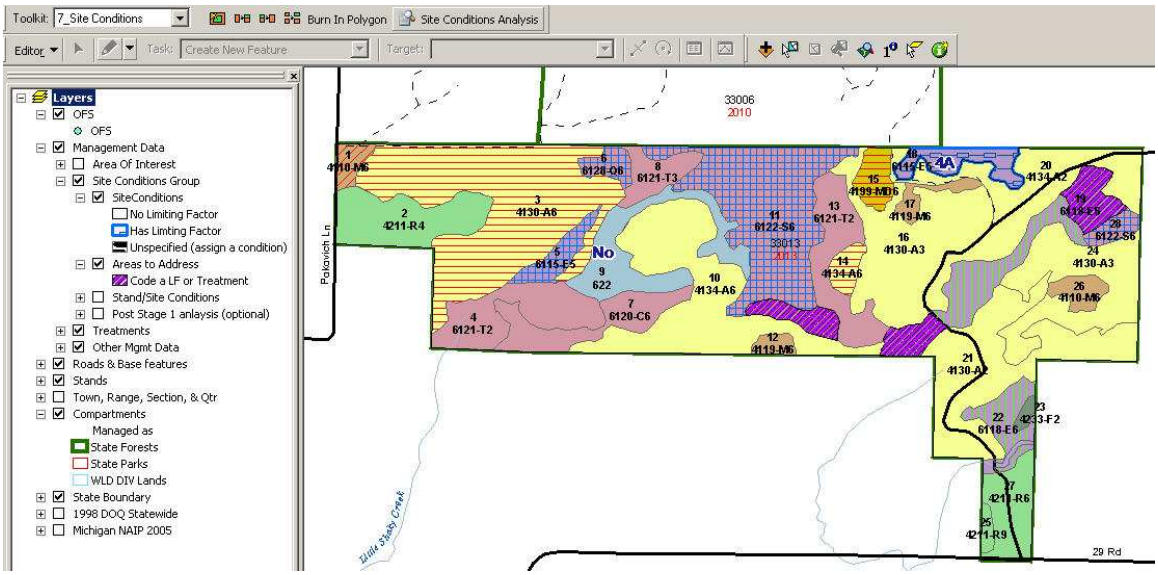
By running the Treatments Analysis Tool after Treatments are written and created, areas are identified that need additional attention (Areas to Address). To fix these areas either a Site Condition is needed or a Treatment should be written. After the modifications are made to either the Site Conditions or Treatments layer, re-run the Treatments Analysis Tool until it doesn't produce an Area to Address.

Prior to the data being frozen at the Compartment Review by the Inventory and Planning Specialist, whenever any of the following layers are edited as described, run (or re-run) the tool:

Treatments layer: Treatments are created; Boundaries are edited.

Site Conditions layer: Any edit (attribute or boundary change) is made.

Forested Stands layer: Any edit is made to the attributes that affects cover type, first age, or the basal area range.



After the Analysis Tool is run, another layer called "Stands/Site Conditions" is created. It comes from an intersection of Treatments, Stands, and Site Conditions, and has a blend of attributes and boundaries from all three of these layers. This layer is used for various reporting and quality control checks.

Changes (additions/deletions) to the Site Conditions layer

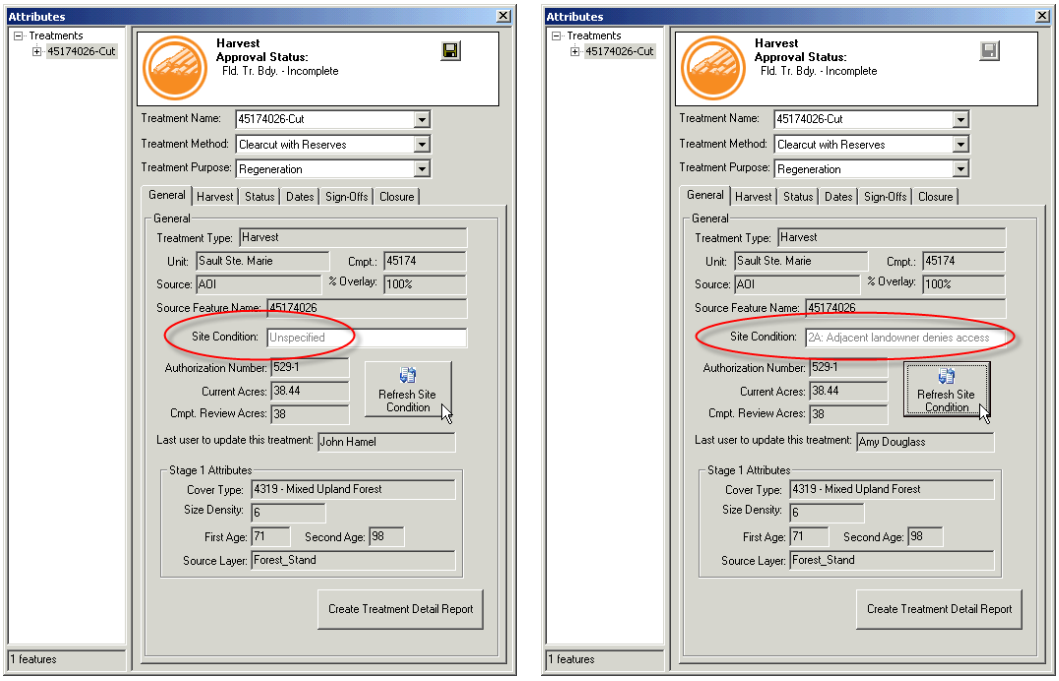
As mentioned previously, changes should be made directly to this Site Condition layer when they are encountered, and/or needed after initially running the Analysis Tool.

Prior to finalizing the data at the Compartment Review, if changes are made to the boundary of the Treatments or Site Conditions layers, rerun the Treatment analysis tool.

When making changes after Treatments are created, you will have to follow a few steps:

- Make the change in the Site Condition layer (either digitize a new Site Condition area or select an area and open the Attribute Editor to make the changes)
- Select the Treatment and open the Attribute Editor

- Hit the 'Refresh Site Condition' button (Note that this now updates the Site Condition in the attributes of the Treatment.)



At any point prior to the Compartment Review, or after the Review during the Activity Tracking process use the 'Refresh Site Condition' button whenever any of the following layers are edited as described:

Treatments layer: A Treatment boundary is edited that overlaps, or shares a boundary with an area coded with a constraining Site Condition polygon.

Site Conditions layer: Any edit (attribute or boundary change) is made that overlaps, or shares a boundary with a Treatment.

This will also need to be done when Site Conditions are lifted from Treatments, or if they are encountered while setting up the Treatment. These changes and refreshes will then update VMS (Vegetation Monitoring System) and the associated reports (Treatment Reports, POW, etc).

When to Code Site Conditions

The flow chart on the following page will help determine when Site Conditions need to be coded.

When to Code Site Conditions